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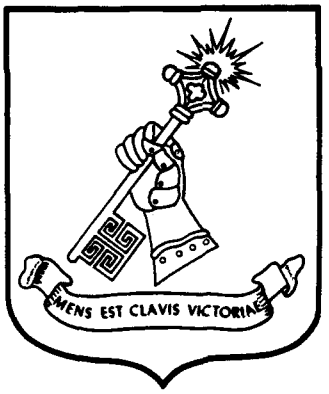
Tank Company Security Operations

A Monograph

by

Major Patrick A. Stallings



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ABSTRACT

TANK COMPANY SECURITY OPERATIONS by Major Patrick A. Stallings, USA, 49 pages.

This monograph examines the capability of United States Army tank companies in the defense to secure themselves against infantry attack. Stationary tank units are vulnerable to infantry using infiltration tactics, particularly in close terrain. Infantry units are well-armed with very effective anti-armor weapons, and can cause great damage if allowed to get close to the tanks. The tank company needs the capability to detect and destroy infantry attacks in order to conserve combat power.

To determine if tank companies have the capability to defend against an infiltration attack, I first give an historical overview that covers light anti-armor equipment development and examples of dismounted attacks on armor units from World War I onward. Next, current and future infantry anti-armor equipment, doctrine, and organizations are examined, as well as modern approaches to light infantry tactics that demonstrate the current nature of the threat to armored defenders. The fourth part of this paper begins with a description of tank company defensive doctrine for security operations. Following this, tank company organization is compared with tank company defensive tasks outlined in doctrine. I also compare doctrine against the threat of infantry infiltration attack to determine the doctrine's effectiveness.

My conclusion is that the current tank company organization is insufficient in equipment and personnel for handling an infiltrating dismounted threat. Needed additions to current structure include sensor systems, thermal night vision devices and other security-related equipment. Personnel shortages are best addressed by ensuring that task organization provides the tank company adequate dismounted security forces to conduct patrols and establish observation posts. Another conclusion is that current company defensive doctrine does not give enough detail and guidance on security operations in the battle position or the assembly area. Doctrine needs to include more definitive direction to the company commander on how to organize and implement his security operations.

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I. INTRODUCTION

In the cold, foggy and dark Korean morning, Captain Steel nervously checked his list of defensive tasks. The company had only been "in country" a few days and they were already in defensive positions designed to defeat an expected North Korean People's Army (NkPA) attack. The S-2 had warned the commanders about the NkPA's light infantry abilities, and Captain Steel knew that he was vulnerable to their infiltration tactics.

Unfortunately, the terrain in his sector was a mix of open, trafficable terrain that invited armor attack and wooded, hilly terrain that provided innumerable dismounted infantry approaches. He had been forced to concentrate his attached infantry platoon's defense around the most dangerous of the infantry approaches, and had to rely on his tank platoons' internal ability to secure themselves.

To make matters worse, the company had suffered three casualties in the tank platoons and had two tanks evacuated with crews to the Unit Maintenance Collection Point (UMCP). He knew from the platoon fire plans that his tank platoon leaders had been forced to accept some risk in order to be ready for the armored threat in their respective sectors. Observation posts (OP) manned by one soldier and heavy reliance on mounted OPs were the order of the day.

The effectiveness of his platoons' efforts to secure themselves became quite clear at that moment. He heard explosions and saw flashes in the third platoon area, and began to call frantically on the wire to find out the situation. The wire didn't work, so he turned to his radio. When his shouts into the mike failed to rouse a response, he ordered his driver to move out of position. The last thing he saw was the flash of the anti-tank mine that had been placed behind his vehicle by the NkPA light infantry.

This is not a far-fetched scenario. Personal experience at the National Training Center (NTC), Fort Polk, and Fort Hood have demonstrated the effectiveness of well-trained, dismounted soldiers armed with modern anti-tank weapons against armor in static positions. A dismounted night attack by infiltrating infantry is often devastating to an armor company's defense,

resulting in unacceptably high losses.

Historical experience and an analysis of current light infantry anti-armor doctrine demonstrate that the potential for such a threat is not just a training phenomenon. Historically, infantry has often attacked armor with hand-held weapons alone. With appropriate equipment and doctrine, these attacks have been very successful.

Currently, some third world nations with technological and numerical deficiencies in weapons systems compensate by using masses of people armed with inexpensive weapons to provide combat power.[1] Even more developed countries, such as the United States, China and North Korea, have doctrine that uses infiltration tactics by infantry units to attack and disrupt defending armor units. Armed forces at all levels of the operational continuum can be expected to conduct infiltration attacks.

The United States Army is expected to operate in all types of terrain and against many different levels of threat. According to our doctrine, armor has a role in all facets of that mission, from low to high intensity conflict.[2] Since infiltration tactics are a common approach for many armed forces, our armor units must be prepared to deal with those tactics.

To determine if tank companies have the capability to defend against an infiltration attack, I first give

an historical overview that covers light anti-armor equipment development and examples of dismounted attacks on armor units from World War I onward. Additionally, I establish some common historical characteristics for infantry anti-armor attacks, as well as a common counter-tactic used by armor forces.

Current and future infantry anti-armor equipment, doctrine, and organizations are examined next. A representative sampling of modern anti-tank weapons is listed with characteristics and capabilities. I then examine modern approaches to light infantry tactics that demonstrate the current nature of the threat to armored defenders.

The fourth part of this paper begins with a description of tank company defensive doctrine for security operations. Following this, I list a tank company's authorized personnel and equipment available for security operations. This provides the data for a comparison of the tank company organization with the defensive tasks outlined in doctrine. I further compare doctrine against the threat of infiltrating infantry attack to determine its effectiveness.

This process highlights several deficiencies in tank company organization and doctrine that need to be addressed. I recommend specific changes and additions to organization and some additions to doctrine that will result in a more secure and robust tank company.

My conclusion is that the current tank company organization is insufficient in equipment and personnel for handling an infiltrating dismounted threat. Also, current company defensive doctrine does not give enough detail and guidance on security operations in the battle position or the assembly area. This deficiency is unacceptable in a world where the Chief of Staff of the Army declares that the Army and the armor force will tailor itself to the battlefield situation, and be ready to deploy and win wherever and whenever required.[3]

II. HISTORICAL PERSPECTIVE

> My first moment of action was when I was marker tank in the Tobruk breakout and a very brave German jumped on my back flaps armed with a molotov cocktail and a crowbar . . . I must admit that ever since then I've suffered a certain amount of 'infantry terror'[4]

Brigadier General Simpkin survived his encounter with an infantry anti-armor attack with the help of an alert wingman. There are numerous examples of other armored troopers who did not. Some of these examples are valuable lessons in the value of denying infantry the ability to find, close with, and attack armor.

World War I

The first infantry attacks against tanks occurred shortly after tanks were introduced onto the battlefield. Recovering from the initial shock of being attacked by armor, infantry soldiers improvised ways to attack tanks. These ways included closing with the tanks and using phosphorous grenades, bundles of fragmentation grenades, and shots through the vision slits to stop the tank or kill the crew.[5] Due to the slow speed and thin armor of those early tanks, these tactics were fairly successful.

Additionally, the "K" bullet was introduced for use by the infantry's heavy rifles in Spring 1917. The "K" bullet, a solid core round capable of penetrating armor, provided the infantry with their first organic anti-armor capability.

The Spanish Civil War prompted the technologically backward separatists in northern Spain to create a sack of explosives with a time fuse for use against armor in close terrain. These first satchel charges required the attacker to close with the tank, start the fuse, and throw the charge on the tank. This highly dangerous maneuver was often fatal for both participants, but demonstrated again the vulnerability of armor to a determined, though lightly equipped enemy.[6]

World War II

World War II brought about the creation of numerous weapons specifically designed for use by infantry to destroy tanks. The German *blitzkrieg* and the apparent invincibility of the tank lent special emphasis to developing a way for light forces to conduct anti-armor operations. Three key anti-armor weapons introduced during this time are described below.

In the late 1930s, the British fielded the first hollow charge anti-tank weapon, a rifle grenade for the Lee-Enfield rifle. This weapon used a physical principle called the Venturi effect to blow a hole through armor with a jet of superheated gases.[7] The principle of the hollow or shaped charge is used in many anti-armor systems today.

A couple of years later, the Germans developed the *Panzerfaust*, a small hand-held recoilless gun armed with a hollow charge projectile. Within 50 yards, it was very effective against tanks. The *Panzerfaust* was also the first anti-armor system to be disposed of once it was fired.[8]

About the same time the Germans were fielding the *Panzerfaust*, the Americans created their own hand-held recoilless anti-tank gun; the Bazooka. This too fired a shaped charge warhead that was, for most of World War

II, very effective against German armor. A heavier version of the Bazooka was developed for use in World War II, but had to wait for the Korean War for widespread employment.[9]

The main similarity between these hand-held anti-tank weapons was the short range required for maximum effectiveness. This requirement to close with the tank produced remarkably similar tactics among infantry forces in World War II. One example of these tactics is exemplified in the anti-tank tactical training described by Guy Sajer in his book The Forgotten Soldier.

Sajer was a soldier in the Gross Deutschland Division on the Russian Front in 1943. His anti-tank training consisted of digging in and allowing tanks to overrun his position, instructions on how to operate the Panzerfaust, and practice in mounting a moving tank to attach a magnetic mine between the turret and hull. This training included waiting until a tank was five to ten meters from his fighting position before leaping out and running to the tank's side or rear to engage.[10] These dangerous tactics were used across the Russian Front to great effect.[11]

Another World War II example of men attacking tanks occurred during the 1st British Airborne Division's fight to retain the bridges at Arnhem. The First Division's brave and lightly equipped soldiers

found themselves facing 56 ton Tiger tanks. Using hand-held anti-armor weapons, anti-tank guns no larger than 75mm, and improvised anti-armor weapons, the airborne soldiers attacked and destroyed 60 tanks in the close confines of the city.[12] They accomplished this feat by using stealth and cover to engage the tanks from the top, rear and sides.

A common thread in World War II anti-armor experiences is the tactic of closing with tanks to take advantage of blind spots and maximize the effects of light weapons. A further consistency is the use of stealth and surprise to engage tanks from the flanks and rear.[13] These similarities find their expression again in the current doctrine described in Section III.

The tanker's reaction to the dismounted anti-armor threat was to look for protection against infantry and anti-armor systems. One solution used by American commanders in Normandy was to have a rifle squad accompany their platoons of tanks. These infantry squads moved forward of the tanks and suppressed the crews of enemy anti-tank guns. This allowed tanks to maneuver through obstacles and close terrain to engage the enemy with the tank's superior firepower.[14] This exemplifies the combined arms approach to armor security that was a tried and true tactic for World War II forces.

Post World War II

The Korean War provides further examples of anti-armor actions. One occurred during the linkup between U.N. Forces driving north from Pusan and east from Inchon. Task Force Lynch, an American infantry unit driving toward Osan, encountered an armored North Korean unit attempting to block the Task Force's advance. Task Force Lynch attacked with infantry and destroyed two T-34s with recoilless rifle and 3.5 inch bazooka fire. As the day ended, more enemy armor was observed. The infantry then conducted a night attack and destroyed "at least four" tanks with bazooka fire. The attack continued the next morning, when 3 more T-34s were destroyed with bazookas.[18]

The Chinese and North Koreans also used infantry forces to attack tanks. They mounted an attack on Task Force Crombez as it attempted to relieve the 23rd Regimental Combat Team in Chipyong-ni. Their technique was to approach the armor column in close terrain and use satchel charges, bazookas and bangalore torpedoes to destroy or disable tanks.

During the Vietnam War, the Viet Cong and the North Vietnamese were also faced with the necessity of attacking armored forces with lightly armed infantry. Their solution was not remarkable; they infiltrated as close as possible to firebases and defensive positions

and then massed anti-tank and rocket-propelled grenade fires on armored targets.[16]

Often the Vietnamese were able to locate American positions by the noise of the maintenance operations required by armor usage in the jungle.[17] Maintenance and sustainment activities in armored units still make avoiding detection by the enemy a problem.

American reaction to attacks like these was geared toward eliminating the advantage that close terrain gave the infiltrating enemy. The use of tree-clearing equipment, defoliants and burn-offs created fire zones that made infiltration more difficult. Armor and infantry provided mutual support within firebases; no tanker liked being stuck outside the perimeter without some security against infiltrators.[18]

Early in their history, the Israeli Army was an infantry-based force with virtually no armor or heavy weapons. During the Israeli War for Independence, the Army compensated for this disadvantage by using infiltration techniques in limited visibility to close with their enemies. The infantry would then destroy any defending armor with anti-armor weapons.[19] These anti-armor weapons were a mix of weapons stolen from the British, bought from foriegn sources, and taken from captured enemy stocks.[20]

Our recent experience in Panama was a positive example of how to avoid tank losses from infantry

attacks. Initially, tanks were tasked to reinforce the infantry. During this period, tanks were often used in engagements with Panamanian forces at ranges under five hundred meters. After a long period of urban and jungle fighting, the tanks were used to patrol as a "show of force" operation.[21]

The close relationship between infantry and armor helped protect the armor throughout the operation. One illustrative observation of the armor commanders on the scene was that "dismounted security is extremely important." We relearned that 360-degree dismounted security is necessary for armored units in close terrain.[22]

Historically then, many infantry forces have tried to take advantage of limited visibility, stealth and surprise to close with armor and maximize the effect of light anti-tank weapons. Typically, armor has reacted by using dismounted security and by avoiding close terrain as much as possible.

BG Simpkin put it best when he said combatants will, ". . . concentrate all available effort, whatever its nature, in time and space against the opposing element which is critical at that point in time and space."[23] We have seen the truth of this in the past when armor was the critical element.

Based on previous analysis, one should question whether modern armed forces plan to use infantry forces

to attack defending or stationary armor units. Also significant is whether or not that attacking infantry will have equipment capable of defeating modern armor systems. These issues will be examined in the next chapter.

III. CURRENT AND FUTURE ANTI-ARMOR EQUIPMENT AND TACTICS

As stated earlier, regional threats will require the Army to be ready to deploy worldwide. Regardless of where the Army goes, the Army must be prepared to face forces armed with high technology weaponry.[24] Along with this weaponry will come tactics designed to maximize the effectiveness of the threat force. In many cases, part of maximizing effectiveness is to plan on infantry attacks against armor units. This section examines representative weapons and tactics that are indicative of current and future approaches to offensive infantry anti-armor doctrine.

Equipment

A representative sample of weapons currently available for anti-armor operations is described in Figure 1.

LIGHT ANTI-ARMOR WEAPONS

Mines:

Model/Name	Type	Carry Weight	Effect
M15 Mine	Pressure	30lbs	Breaks track
M19 Mine	Pressure	28lbs	Breaks track
M21 Mine	Tilt Rod/ Pressure	18lbs	Kills or Breaks track
M24 Mine	Switch/Cmd	24lbs	Kills

Indirect Fire Weapons:

Model/Name	Type of Round	Penetration
M203 Grenade Launcher	High Explosive	50mm armor

Direct Fire Weapons:

Model/Name	Type of Round	Carry Weight	Penetration	Range
AT-4	Shaped Charge-HEAT	15lbs	350mm armor	300 M
M72A4 LAW	Shaped Charge-HEAT	7lbs	350mm armor	220 M
RPG-7V	Shaped Charge-HEAT	22lbs	330mm armor	500 M
RPG-22	Shaped Charge-HEAT	11lbs	390mm armor	250 M
Panzerfaust3	Shaped Charge-HEAT	26lbs	700mm armor	500 M

HEAT--High Explosive Anti-Tank

Figure 1

All of the weapons systems in Figure 1 are available to a light force for killing tanks. They are light enough and have enough range and lethality to make a light infantry soldier a tank-killing system. Properly employed against the flanks, rear, and underbelly of a tank, all can destroy or disable.

Tactics

An observation from the Center for Army Lessons

Learned (CALL) indicates that "seventy five percent of units which maintain security, win. Ninety three percent of those that don't lose.[sic]"[26] The advantages in intelligence and disruption of the defensive scheme that accrue to units that successfully penetrate security measures are very important in setting the conditions for a successful attack. Given this observation, the role of dismounted infantry in denying security to defending forces becomes very significant.

According to these observations, dismounted infantry should use "stealth, darkness, and restrictive terrain" to infiltrate enemy lines, recon obstacle locations and enemy positions, and conduct supporting attacks.[26] These infiltration tactics are meant to bypass and eliminate the defending armored force's security system.

One recommended infantry attack technique is to force the armor out of position and into the killing zone of supporting anti-armor systems. The targeted vehicle must choose between flank and rear shots from attacking infantry or direct engagement with supporting armored systems.

The observations further recommend electronic warfare support to jam fire control nets and protect the light force from indirect fires.[27] Additionally, indirect fire support, particularly smoke and

illumination, is important for creating successful conditions for the infiltrators.

Many nations and forces adhere to the light infantry doctrine recommended above. Some examples are discussed in the following sections.

82nd Airborne Division

The Anti-Armor Handbook for the 82nd Airborne Division describes tactics, techniques, and procedures for operations against armored forces. The handbook was developed because of the need for airborne forces to deal with armored adversaries.[28]

The basic tenet of the 82nd Airborne's approach to attacking armor is to use stealth and periods of limited visibility to close with defending tanks. The infantry maneuvers to gain the advantages of flank and rear shots.[29] Their stated intent is to minimize casualties while maximizing weapons effects.[30] Using these tactics, the airborne infantryman can attack important rear area sites, ambush supporting units, and attack to disrupt the defensive system.[31]

United States Marines

The United States Marines also recognize the need to train infantry units to fight against an armored

threat.[32] The Marine Infantry Officer's Basic Course teaches its officers to draw tanks into ambush; use smoke and suppressive fires to force the armor to button up; disable them by flank and rear shots; and destroy them using satchel charges, molotov cocktails, thermite grenades, and anti-tank weapons.[33]

An article in the Marine Corps Gazette describes infiltration as the offensive form of maneuver for light infantry. According to this article, one of the objectives is to create a breakthrough by disrupting or destroying key defensive positions. The author also points out that current technology allows relatively small bands of infantrymen to call in highly accurate and lethal indirect fire on identified enemy locations.[34]

Other Marine articles recommend training techniques for preparing infantry to attack tanks in close combat. Familiarization with tank vision restrictions, the noise of tank gunnery and operation, and an appreciation for how to use restrictive terrain to close with tanks are listed as training techniques.[35] All of these techniques prepare Marine infantryman to take on armored forces and win.

Other Nations

Other nations have developed organizations and

tactics geared toward defeating armored forces. Chinese principles of combat include secrecy, infiltration and night operations to maximize the effectiveness of their largely infantry force.[36] Soviet platoon leaders and company commanders personally take their units through rigorous training on tank vulnerabilities, emphasizing how to take advantage of such weak spots.[37]

One regional threat particularly well suited to infiltration tactics is the North Korean People's Army (NkPA). Specific organizations and tactical doctrine have been developed by the NkPA to support dismounted assaults on South Korean and American defenses.[38]

Aside from their combat infantry line units, the NkPA has over 100,000 unconventional warfare and special commando troops whose primary mission is to create breakthroughs of defensive lines.[39] These infiltrating forces have major objectives of securing the approach routes; raiding and fixing enemy strongholds; securing and controlling key terrain; and other disruptive missions.[40] They will use stealth and limited visibility to penetrate defenses and close with defending forces.

NkPA combat infantry units have five basic forms of maneuver: penetration; *Pocho* (an infiltration maneuver by small units through gaps in the enemy lines); *Cheon Ib* (another form of infiltration

maneuver); envelopment; and bypass. Infiltration, deception and surprise are integral parts of each technique.[41] Additionally, the night attack is a preferred method of conducting offensive operations, while one of the types of nighttime formations is the dispersed formation. This formation is used to allow infantry units to find gaps in enemy defenses and close with enemy positions.[42]

All of the forces discussed are highly formidable, with tactics well suited to disrupting and defeating armored defensive positions. In general, their infantry will use stealth, cover, concealment and limited visibility to close with tanks and engage them from the flanks and rear. American armor units must be prepared to deal with this threat wherever and whenever necessary.

Future Equipment and Tactics

As far as the future of light anti-armor warfare is concerned, armies will continue to develop lighter, cheaper, recoilless, smokeless antitank weapons to exploit tank weak spots.[43] Therefore, the next generation of anti-tank weapons is likely to attack the top of armored vehicles[44] or at least have improved ability to penetrate reactive or composite armor. Although effective ranges may increase, weapon weight

will be kept low enough to allow a dismounted soldier to carry it.

Additionally, laser technology currently allows small groups or teams of light infantry to locate armor defenses and designate individual tanks for indirect fire targeting. This in turn allows these infiltrating teams to strike repeatedly without being detected unless active detection measures are taken. As laser technology becomes more widespread, this technique will be adopted by many forces in order to maximize lethality while minimizing cost.

The basic tactic of using stealth, limited visibility and close terrain to facilitate infiltration will remain the same. Although technological reaction and counter-reaction may protect against many weapons, doctrine and organization must adequately protect against the threat of infiltration attack. The key now and in the future is to deny the enemy access to your defensive positions.

IV. TANK COMPANY SECURITY CAPABILITIES

The central question of this monograph is whether the tank company has the capability to secure itself against the threat described in Section III. For the purposes of this study, capability is expressed as a

function of assets available, the doctrine for those assets employment, and their combined impact on the threat. All three are examined in this section.

Company Organization

The organic assets the tank company commander has to conduct security operations are prescribed in the Table of Organization and Equipment (TO&E). By task organizing, the battalion commander can provide the company commander with more personnel and equipment with which to secure his unit. The need for task organization is determined for each mission by considering the situation in terms of mission, enemy, troops, terrain, and time (METT-T). Since task organized assets can be as different as each battalion commander's assessment of METT-T, I will only discuss personnel and equipment organic to the tank company.

Personnel

Personnel available to the tank company commander are listed in Figure 2.

CAPTAIN ----------	1
LIEUTENANTS -------	4
FIRST SERGEANT ----	1
SUPPLY PERSONNEL --	2
NBC PERSONNEL -----	1
PLATOON SERGEANTS -	4
TANK COMMANDERS ---	6
TANK CREW MEMBERS--	43
	62[45]

Figure 2 - Personnel inventory for tank company

These personnel are divided up amongst three line platoons of four tanks each, and a headquarters platoon with one armored personnel carrier, two 1-1/4 ton trucks (HMMWV), one five-ton truck, and two tanks. Each line platoon is authorized one officer, one platoon sergeant, and fourteen soldiers, while the headquarters platoon has the remaining two officers, the first sergeant, and eleven soldiers. With this number of personnel, the company has no more than a complete crew for each vehicle. By comparison, the mechanized infantry company has fifty-four dismounted personnel not committed to crewing vehicles.[46]

Equipment

A partial list of authorized tank company equipment is at Figure 3. The list is limited to equipment with direct applicability to security operations.

Equipment	Auth	Remarks
M1A1 Tank	14	4 per platoon, 2 in HQs
M113A2 Armored Personnel Carrier	1	Headquarters platoon
M8A1 Chemical Alarms	4	1 per platoon
Binoculars	16	1 per tank
Commo wire rolls, .5 km each	16	8000 meters capacity
Camouflage screen systems	51	
Remote control landmine system	2	
40MM grenade launcher	2	Mounted on M16A2 rifles
Cal .50 MG, Heavy fixed turret type	14	1 per tank
Cal .50 MG, Heavy Barrel, flexible	2	Mounted on truck & M113
Ring mount, Cal .50 MG	1	Truck mount
Ground mount, Tripod, Cal .50 MG	1	Carried in M113A2
Night Vision Goggles, AN/PVS 7B	36	2 per tank
9MM Pistols	58	Personal weapon
Radio Sets, Vehicle mounted	17	
M16A2 Rifles	4	Personal weapon
Phone Sets, TA-1 & TA-312	12	3 per platoon
M-4 Carbine, 5.56mm	28	2 per tank[47]

Figure 3 - Tank company equipment

Tank Company Defensive Security Doctrine

Company defensive tasks are outlined in mission training plans (MTP), field manuals (FM), and unit standard operating procedures (SOP). Within the defensive regimen, many tasks are either directly related to providing security for the force or direct assets away from that requirement. A short summary of defensive tasks is included below.

Preparing the Tank Company Defense

A simple list of tank company tasks for the

establishment of the defense is contained in the company-level and platoon-level MTP:

-- Occupy per platoon MTP
-- Establish unit security
-- Emplace Observation Posts (OPs) and air guards
-- Patrol areas that cannot be observed
-- Emplace Platoon Early Warning System (PEWS)
-- Conduct stand-to per SOP
-- Position weapons systems and establish fields of fire
-- Camouflage positions
-- All infantry fighting positions and OPs with overhead cover in two hours
-- Conduct rehearsals
-- Improve defense
-- Recon and establish alternate and supplementary positions
-- Emplace minefields and obstacles
-- Stockpile and protect ammunition and supplies[48]

The establishment of unit security is intended to protect the rest of the company during preparation of the defense. Many of these security tasks require more effort and assets than others, and are described below.

Observation Posts

Combat forces and Observation Posts (OPs) are established to provide early warning and gain time for the defenders in case of attack. The emplacement of OPs is critical to securing the defense against all manner of threats. Standards for the establishment of OPs are:

-- Platoon Leader or Platoon Sergeant site the OP
-- Must have good observation and provide early warning

-- Select multiple positions if needed to cover platoon's sector
-- Have good cover and concealment, with overlapping fields of view when possible
-- Covered and concealed routes back to the position.
-- Have individual weapons, rifles, telephone, MOPP suits/mask, binoculars, night vision goggles or sights, map/compass, Load Bearing Equipment (LBE)
-- At least two soldiers per OP[49]

OPs may conduct air guard duties, but typically this duty is picked up by a vehicle with some defensive counter-air capability. In a tank company, this requires an individual to scan air avenues of approach from the tank commander's position of a tank.

Patrols

Patrols of dead space in sector must be conducted at random, but with well coordinated and planned routes. Patrols are best employed during the day, while other passive measures are more effective at night. Patrols must have communication, rifles or submachine guns, and appropriate supervision by trained Non-Commissioned Officers.

Platoon Early Warning System

Emplacement of the Platoon Early Warning System (PEWS) requires two soldiers three to five minutes per sensor for installation. With five sensors per system,

total installation time is approximately thirty minutes. Monitoring the system can be done by OPs, but recovery is best accomplished by the same team that emplaced the sensors.[50]

Obstacles

Obstacles are emplaced under the supervision of a platoon sergeant. Crews must emplace obstacles within six hours. Security must be provided for the obstacle teams initially, and then for the obstacles once established. That security can be dismounted or mounted, depending on the situation.[51]

Conducting the Tank Company Defense

From the incredibly busy activity of establishing the defense, the company must shift into maintaining and conducting the defense against all attackers. Although the list of tasks is smaller, the commitment of assets is still intense. Tasks associated with this phase are:

-- Continue to improve the defense
-- Conduct counter-recon
-- Prepare for tactical operations
-- Defend against dismounted attack
-- Defend against mounted attack[52]

Even after the defense is "established", the company continues to improve its positions. Improving

the positions includes: camouflaging vehicles and equipment; clearing fields of fire; burying wire; improving firing positions; digging communication trenches between positions; and other improvements the leadership deems necessary.[53]

Preparation for tactical operations requires many actions to be sustained for the duration of the defense. The first priority is securing the position by maintaining OPs, patrols, air guards, and PEWS. Equipment and weapons' maintenance is also absolutely essential. Resupply operations, particularly food, fuel and ammunition, must also be conducted daily. Training and rehearsals continue, and a sleep plan is executed to maintain continuous operations.[54]

The standards for a successful defense against dismounted attack prohibit losing more than one vehicle per platoon.[55] The subtasks of this requirement recognize the importance of detection and warning to defeating the dismounted threat. Even with successful detection and reaction, the standards allow the platoon leader to withdraw if necessary to conserve the combat strength of his platoon.

Defense against a mounted attack requires the concentration of company firepower against the enemy. Key players in accomplishing this are the OPs established earlier. OPs provide early warning, calls for indirect fires and assistance in identifying the

location of the enemy attack.[56]

Before any attack, counter-reconnaissance is conducted to force the withdrawal or destruction of enemy reconnaissance units. The entire company is involved in making the counter-reconnaissance fight a success, as depicted in Figure 4 and 5.[57]

Figure 4 illustrates a security plan for fairly clear terrain, where mounted OPs are able to establish fields of surveillance that can truly interlock and

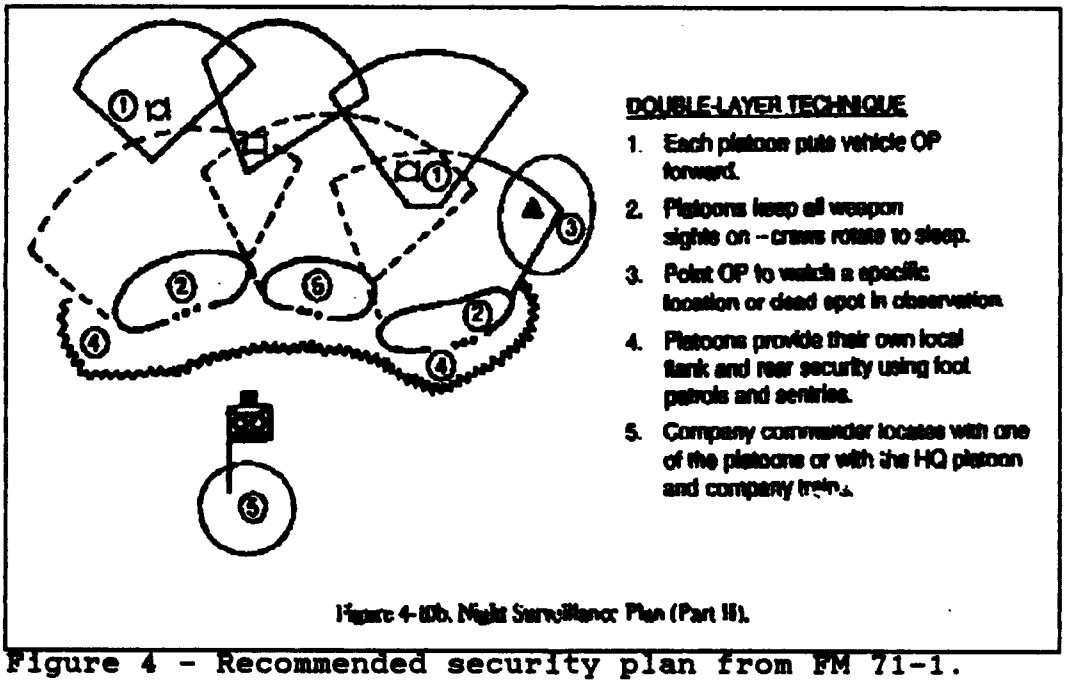


Figure 4-10b. Night Surveillance Plan (Part II).

Figure 4 - Recommended security plan from FM 71-1.

reach out a long distance. The commander is expected to "spread his platoons and vehicles as far apart as necessary without losing the ability to concentrate firepower against the enemy."[58] Given that a platoon's defensive sector is typically from four hundred to eight hundred meters wide, the layout depicted would

have to be used in very open terrain in order to deny dismounted routes into sector. In fact, the platoon in mounted OP positions would be covering the company's frontage of one thousand to sixteen hundred meters. This dispersion leaves room for infantry infiltration routes if enough cover or concealment is available.

Figure 5 also envisages fairly open terrain for employment of the defense. This is a more realistic approach to securing a position, with a mix of mounted and dismounted security that, if properly employed and maintained, should be able to detect and react to both

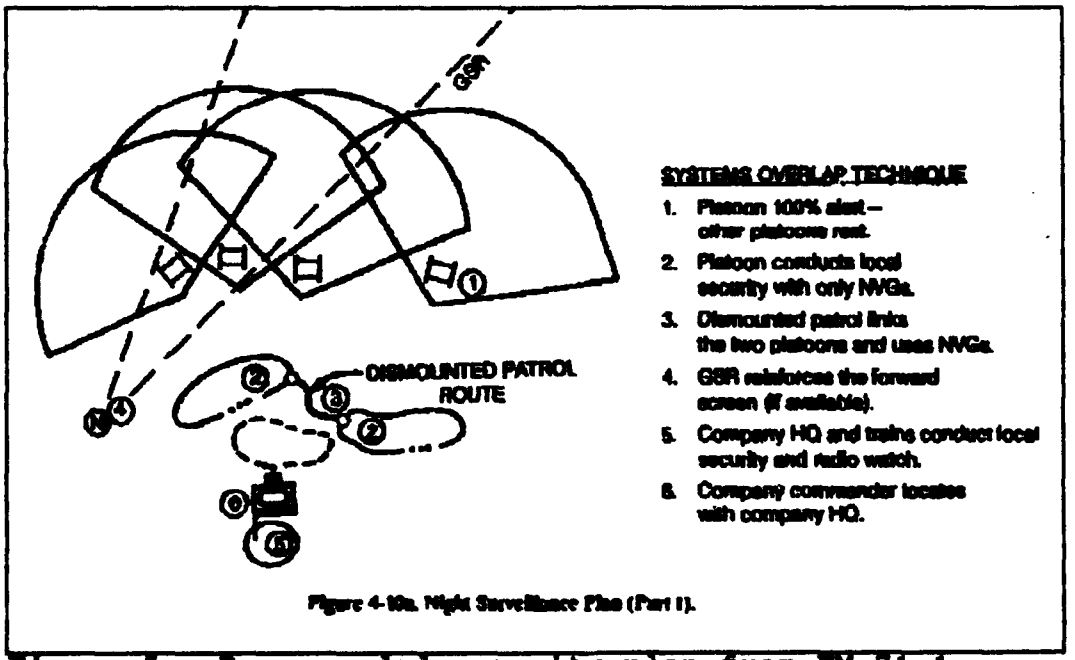


Figure 4-10a. Night Surveillance Plan (Part I).

Figure 5 - Recommended security plan from FM 71-1

mounted and dismounted attack. In close terrain the number of dismounted OPs would have to be increased.

In addition to the defensive tasks discussed earlier, other tasks, requirements, and duties will

naturally pull at the company's already limited assets. Sickness, injury, special duties (details, etc.), and maintenance related jobs will also require the committment of company personnel.

Assembly Area Operations

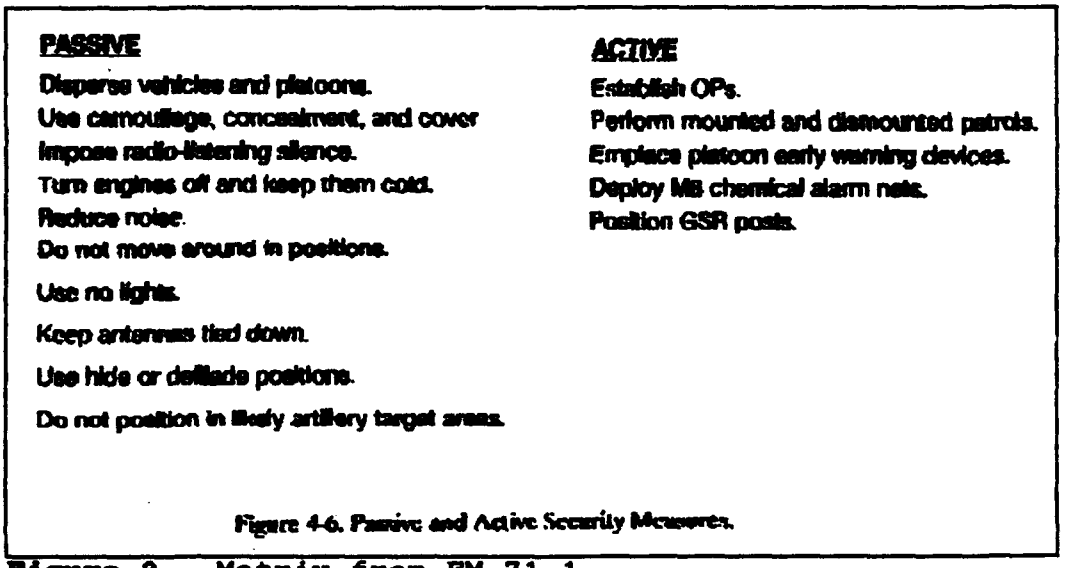
Another type of operation requiring security operations against a dismounted attack is occupation of an assembly area. Assembly areas are temporary positions that resemble defensive positions, but are more temporary and typically oriented three hundred and sixty degrees for security purposes. In assembly areas, many of the same tasks are required as in the defense.

Security operations during the occupation of an assembly area are geared toward avoiding detection, since defensive arrangemements are usually hasty. This includes an increase in dismounted patrols to cover dead space and heightened alert status for vehicle crews.[59]

Security Operations

Within the framework of assembly area and defensive tasks is the need to maintain security. FM

71-1, "Tank/Mechanized Infantry Company Team" describes security measures as those actions taken to "protect the team from being found or attacked by surprise."[80] Figure 6 is a matrix from the manual listing some active and passive security measures.



PASSIVE	ACTIVE
Disperse vehicles and platoons.	Establish OPs.
Use camouflage, concealment, and cover	Perform mounted and dismounted patrols.
Impose radio-listening silence.	Emplace platoon early warning devices.
Turn engines off and keep them cold.	Deploy M8 chemical alarm nets.
Reduce noise.	Position GSR posts.
Do not move around in positions.	
Use no lights.	
Keep antennas tied down.	
Use hide or defilade positions.	
Do not position in likely artillery target areas.	

Figure 4-6. Passive and Active Security Measures.

Figure 3 - Matrix from FM 71-1.

Comparison of Doctrine to Assets

As described earlier, OPs are very important for the company's defensive security. To minimize effect on the total force and heighten the teamwork of the OP team, two members of the same tank crew are used as OPs. If required, the remaining two crew members can move their tank. The problem is they can only fire in slow, degraded mode. If each platoon is forced by terrain to establish an OP, the company commander's

immediately available firepower is cut by one-fourth.

Since two of the sixteen personnel assigned to a tank platoon are the platoon leader and platoon sergeant, there are actually fourteen men at best to maintain a two-man OP on a twenty-four hour basis. If teams are rotated to maintain effectiveness, the platoon leader will cycle through his entire platoon in short order. At the same time, the platoon must have someone on air guard and monitoring the radios. Further, dismounted patrols will require at least three soldiers under a Non-Commissioned Officer's control (typically a tank crew) to periodically check their sector.

All of the tasks listed above, along with maintenance jobs, sustainment requirements, and sleep planning add to the platoon leader's personnel load. He must accept considerable risk in some areas to accomplish all of these important tasks.

As casualties, illness, or accidents occur, the platoon leader's capability to conduct security operations is further degraded. There is no redundancy in the organic tank platoon or company organization that compensates for personnel shortages.

One obvious equipment shortfall is the lack of Platoon Early Warning Systems (PEWS). Despite the recognition in doctrine that this sensor system is needed at the platoon level to effectively implement

security operations, the PEWS is absent from the tank company's authorized equipment. This is particularly serious since the system would help compensate for personnel shortages in the organization by covering dead space that might require an OP.

The heaviest weapon available for a dismounted platoon member is the 5.56mm carbine. OPs need a more effective weapon to engage and suppress infiltrating infantry. The tank company has 7.62mm machine guns mounted at the loader's position on each of its tanks. These could be used by the OPs if a ground-mount was provided.[61] An observation from Operation Just Cause was that a ground mount system of some sort was needed for the coaxial machine gun on the Sheridans. One crewman went so far as to actually use asbestos mittens to hold and fire the dismounted coaxial machine gun to suppress attacking infantry.[62]

Another equipment problem is the shortage of binoculars. There are just enough for a set on each of the tanks and two sets with the commander and executive officer respectively. When a set of binoculars goes forward with the OP, one of the tanks does without. This reduces one tank commander's capability to observe his sector during daylight hours.

The lack of a man-portable radio is also a problem. Doctrine recommends the use of patrols to cover dead space, but the TOE does not provide the tank

company any communication capability for those patrols to report contacts. The additional radios would also provide a back-up for wire communications to OPs.

OPs are expected to establish their positions as standard fighting positions with at least eighteen inches of overhead cover. There are no provisions in the TOE or on the M-1 tank load plan for materials to accomplish this requirement with the exception of a shovel, axe, and pick. I found that airfield paneling provided an excellent overhead base. With the addition of sandbags to the load plan, the unit would have adequate resources to protect their OPs in any terrain.

One advantage for the company is its tank Thermal Imaging Systems (TIS). These ballistic sights allow night and day target acquisition and engagement capability for the main gun and co-axial machine gun. Thermal sights allow identification of vehicles at 2000 meters[63] and detection of dismounted personnel at 4000 meters regardless of light conditions.[64]

There are some limitations to the thermal system. Thermal sights are powered by the tank's batteries, and cannot be dismounted from the vehicle. The power drain from running the sights requires the periodic recharging of the batteries by running the tank's engine. Aside from the intermittent noise of running engines, the sights themselves emit a loud clicking noise easily discernible up to 100 meters from the

tank.[66] These unavoidable noise producers are a real handicap to noise reduction as a passive security measure.

Also, thermal sight capabilities are degraded by rain, snow, dust, infrared smoke, and heavy foliage.[66] Unfortunately, these conditions occur with great regularity in many parts of the world. Additionally, as a line-of-sight system, terrain masking also blocks thermal sight detection.

Future tank designs are going to worsen some of the problems by reducing the number of available personnel. The tanks of the future will most likely have reduced crew size due to adoption of an automatic loader.[67] These two or three man crews will still have to handle the tasks listed above. The current tank company can barely accomplish these tasks as organized. The reduction in personnel will force some sort of augmentation by personnel and equipment to successfully secure the future tank company.

Comparison of Capability to Threat

The threat of infiltration attacks characterized by use of stealth, surprise, limited visibility, and close terrain was described in Section III. The tank company commander must not only array his forces to

detect these attacks, but must also be arrayed to defend against what is probably his primary threat, the mounted attack. The difficulty in resolving this dilemma is the most serious consequence of gaps between capability and doctrine the commander faces.

In open terrain, the tank company commander's night vision sights and weaponry allow him the flexibility to set up effective mounted OPs which can be supplemented by minimal dismounted OPs to compensate for dead space. This is the ideal situation that doctrinal security operations are best suited to address. Unfortunately, flat, clear terrain is not prevalent in many parts of the world where tanks might be expected to fight.

Close terrain, such as heavily forested areas or hilly, rugged ground is not as simply defended. Mounted OPs in close terrain are themselves vulnerable to infiltration attack due to their noise and physical signature. Many of the advantages of mounted sights and weaponry will be negated by intervening terrain and vegetation. All that an attacking infantry unit requires is one unwatched lane to successfully to overcome a defender's counter-recon effort.

Heavy use of dismounted OPs to compensate for limited fields of observation will quickly denude the company's ability to fight its tanks. OP equipment is inadequate; moonless or cloudy nights limit the

capability of the authorized passive night vision goggles significantly. Tank company OPs do not have sufficient weaponry to defeat or suppress attacking infantry units.

Clearly these deficiencies indicate the TOE does not provide adequate personnel for executing security operations as required by current doctrine. On paper there are enough soldiers in the company to handle security requirements. However, due to lack of depth in the organization, any circumstances that detract from the number of available soldiers will impact directly on the company's capability to sustain defensive operations.

Equipment shortages and inadequacies are also debilitating. The lack of ground movement sensors like the PEWS handicaps the company's detection effort. Infiltrating forces will take advantage of densely foliaged areas and dead space to move into sector. Easily emplaced and recovered sensors would allow the company to cover infiltration avenues of approach while minimizing OP requirements. Unfortunately, even the PEWS has only a thirty percent chance of detecting a crawling man.[ee] A sensor system with better detection capability is needed to cover densely vegetated avenues of approach.

The passive night goggles currently authorized are easily degraded by lack of natural illumination or

washout from artificial illumination. Since infantry units are going to attack on clouded, moonless nights or use indirect fire illumination to blind passive night surveillance systems, passive goggles have some definite disadvantages.

Additionally, doctrine fails to adequately address the threat. The company commander is instructed to cover enemy avenues of approach into his position, but diagrams and emphasis all imply that security is only used forward of the defensive position. Lack of all around security is dangerous considering infantry's doctrine of infiltrating to attack the flank and rear of tank positions.

Doctrinal manuals discuss the process of bringing enemy mounted units under fire, but do little to instruct the company commander on what process he should follow to defend against attacking infiltrators. Company counter-reconnaissance and security doctrine does not provide the commander with an adequate framework for planning and preparing.

V. CONCLUSION AND RECOMMENDATIONS

Tank companies have a marginal capability to secure themselves against infiltration and attack by dismounted infantry. Important gaps in equipment

authorizations and doctrinal expectations exist. Additionally, lack of depth in personnel strength assures that casualties and injuries will degrade that capability from marginal to inadequate. This problem is not insurmountable, if some changes in TO&E and doctrine are implemented.

First, the tank company commander needs a more complete doctrinal answer to the question of how to secure his force from an infiltration attack. One recommendation is that doctrine on company security operations adopt a DECIDE - DETECT - DESTROY technique for planning and conducting this critical element of the defense.

The commander must decide which dismounted avenues of approach to monitor as well as the technique he is going to use to conduct the monitoring. The monitoring effort must be as far from his main positions as his assets will allow, as well as oriented in all directions. The key is to achieve "first detection advantage" by detecting the attacking infantry prior to their discovering the main defensive positions.[69]

He must array his detection effort in at least two belts to initially detect and then finally determine the direction and intent of the enemy attack. The commander can acheive this by mixing sensors, mounted and dismounted OPs, and roving patrols in a coordinated and rehearsed security plan in depth.

Lastly, he must have a plan to destroy the infiltrators. His OPs must have both direct and indirect fire engagement criteria for attacking small forces, while a reaction force is ready in the main defense to move out, intercept, and destroy larger attacks.

Regardless of improvements in doctrine, the company needs more personnel to accomplish the defense as well as secure itself. While adding personnel, such as an infantry platoon or extra tankers, on a permanent basis might appear to be an easy answer, manning constraints will probably not allow this action. The next best answer is to ensure that each tank company has an infantry platoon attached to it for security operations.

In 1986, a study was conducted at Fort Hood, Texas to examine the effect of creating combined infantry and armor units at the battalion level. There was little appreciable difference between the combined arms battalions with permanently assigned tank and infantry teams and a normal task organized unit with habitual task organization relationships.[70] The key change is that the decision to task organize is no longer situationally dependent. The decision to <u>not</u> task organize now creates a significant risk.

Some equipment should be added to the company organization. One example is the Platoon Early Warning

System. PEWS is needed in the current organization as an interim fix to the lack of sensors. In the long run, the company needs a more advanced sensor system that can reliably detect a wider range of threats, such as crawling men, and can relay that data over a greater distance than PEWS.

Hand-held thermal viewers, such as the AN/PAS-7, are also needed by company security forces. These devices can detect infantry out to 400 meters, as well as identify vehicles at approximately 1000 meters. Infantry companies are currently authorized six of these devices for their security effort.[71] Tank companies have the same security requirements, but no hand-held thermals are authorized. As noted earlier, the tank company also needs portable radios, ground mounts for the loader's machine gun, and additional binoculars to more effectively protect itself from infiltrators.

If doctrinal improvements and organizational changes are implemented to correct the deficiencies noted in this paper, the fate of Captain Steel and his company should be quite different from the initial scenario.

In the cold, foggy and dark Korean morning, Captain Steel checked his list of defensive tasks. The company had only been "in country" a few days and they were already in defensive positions designed to defeat an expected North Korean People's Army (NkPA) attack. The S-2 had warned the commanders about the NkPA's light infantry abilities, but Captain Steel felt confident that he had covered all the dismounted approaches into his sector.

The terrain in his sector was a mix of open, trafficable terrain that invited armor attack and wooded, hilly terrain that provided innumerable dismounted infantry approaches. He had concentrated his attached infantry platoon's defense around the most dangerous of the infantry approaches, and had to rely on his tank platoons' internal ability to secure themselves. Fortunately, those platoons had equipment and sensors specifically designed for security operations.

The company had suffered three casualties in the tank platoons and had two tanks evacuated with crews to the Unit Maintenance Collection Point (UMCP). He knew from the platoon fire plans that his tank platoon leaders had been forced to accept some risk in order to be ready for the armored threat in their respective sectors. To compensate, their Platoon Early Warning Systems were deployed to cover dismounted approaches. The Observation Posts (OP) deployed to back up the sensors were all equipped with thermal viewers and a 7.62 mm machine gun.

The effectiveness of his platoons' efforts to secure themselves became quite clear at that moment. 3rd platoon reported a sensor alert for dismounted personnel in his sector. Shortly after that, the third platoon OP detected the movement of infiltrators toward the main defense, and began engaging with his automatic weapon. The OP then called indirect fire on the infiltrators, effectively stopping them in their tracks. Captain Steel's company positions remained undetected and ready for the main attack the next day.

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